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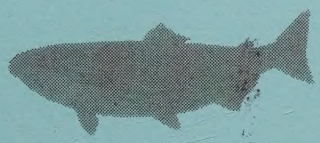
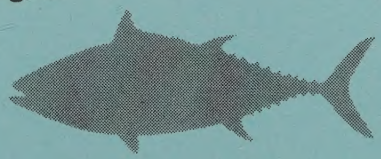


1983 ECONOMIC STATUS REPORT on the NORTHWESTERN HAWAIIAN ISLANDS SPINY LOBSTER FISHERY

by

Svein Fougner



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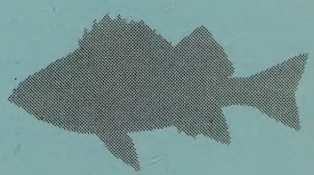

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1983 ECONOMIC STATUS REPORT

on the

NORTHWESTERN HAWAIIAN ISLANDS

SPINY LOBSTER FISHERY

Svein Fougner
Southwest Region
National Marine Fisheries Service
Terminal Island, CA 90731

ADMINISTRATIVE REPORT SWR-84-2

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I. Highlights

Total estimated landings of legal-sized spiny lobster in 1983 were more than 181,000 pounds of lobster with an estimated landed value of $543,000

The catch rate for the year was 2.05 legal spiny lobster per trap

Four vessels were active in the fishery and made 19 trips

The landings of slipper lobster were 25,600 lobster; only three Kona crab were landed

A total of 60,492 sublegal and berried spiny lobster were taken and released

There were no reported instances of interaction with endangered or threatened species

II. Components of the Fishery

The Northwestern Hawaiian Islands (NWHI) Spiny Lobster Fishery harvests spiny lobster, slipper lobster, and (very rarely) Kona crab in the portion of the Hawaiian Archipelago extending northwest from Nihoa to Kure Island. The estimated maximum sustainable yield (MSY) of the spiny lobster stock is in the range of 200,000 - 435,000 lobsters per year (Spiny Lobster Fishery Management Plan, p. 145), with a 7.7 cm carapace length size limit which is now in effect. Since the fishery was initiated in 1978-79, the stock appears to have been reduced somewhat from a "virgin" stock level. There is no evidence of overfishing; however, landings have been very variable since 1978 (Table 1).

The NWHI comprise an essentially uninhabited string of islands, islets, and reefs running 500 to 1,500 miles northwest of Honolulu. The fishery has been conducted primarily at the islands nearest to Honolulu, especially at Nihoa and Neeker Islands and Maro Reef. Lobsters are generally caught in waters between 10 and 100 fathoms deep.

The NWHI spiny lobster fishery is solely a commercial fishery. There is no recreational fishing, other than limited fishing by Navy and Coast Guard personnel at Midway Island and Kure Atoll, due to the distance from the main islands. Until the fishery developed, virtually all lobsters caught and sold in Hawaii were sold in whole, live lobster form. With the larger volumes and long distances involved in the NWHI fishery, on-board processing became common, and frozen lobster tails have become the primary product form.

Fishing in the NWHI is regulated under a fishery management plan (FMP) developed by the Western Pacific Fishery Management Council and implemented by Federal regulations on March 9, 1983. The FMP establishes minimum size limits (7.7 cm carapace length, or 5.0 cm tail width if tails have been separated). Berried and sub-legal lobsters must be returned to the water as soon as

possible after sorting. No fishing is allowed within 20 miles of Laysan Island or in FCZ waters shallower than 10 fathoms. Only traps may be used, and trap openings must be a certain size. Fishermen must obtain permits and submit reports of catch, effort, and sales information.

III. Commercial Harvesting Sector

Although the FMP only went into effect in 1983, there are estimates of catch, effort, and total revenue for the fishery since 1977 (Table 1). The peak of the fishery to date was reached in 1981, when 780,000 pounds (whole lobster weight equivalent) were landed with an ex-vessel value of $2.73 million. In 1982 and 1983, landings were 187,000 and 181,000 pounds respectively. The ex-vessel price per pound apparently decreased in 1983. This was the first year in which fishermen had to reported sales, and earlier years' revenue or price estimates may have been high. The bulk of landings consisted of frozen tails. Two vessels delivered whole, live lobster, but these made up a small portion of total landings. The incidental catch of slipper lobsters was 25,600 slipper lobster.

Four vessels participated in the fishery in 1983, down from seven vessels in 1982. The total number of trips, however, remained steady at 19. These vessels range in length from about 60' to 80'. They generally have a crew of four to six people and carry 250 to 300 traps. The vessels apparently target primarily on spiny lobster; there is no documentation that they fish for bottomfish, pelagics, or other crustaceans on a trip in which they take lobsters. Virtually all vessels use plastic crab traps of the type used in California's Dungeness crag fishery.

Almost two-thirds of total catch, and more than half the effort, were made in the October-December quarter, a period when relatively rougher ocean conditions would normally be expected to result in lower catch and effort. This reflects new entry into the fishery rather than an unusual seasonal pattern. The reported catch per effort by different vessels was highly variable, with a range from 1.46 lobsters per trap to 4.39 lobsters per trap during the year.

IV. Processing Sector

Initial processing of lobster takes place on fishing vessels, where carapace and tails are often separated and tails are blast frozen. Frozen tails are individuals wrapped and packed in large plastic bags with 40-70 pounds of tails per bag. Subsequent sorting by size is done after landing and before shipping to the mainland or to export markets. The portion of total landings sold in Hawaii, shipped to the mainland U.S. and exported is not known. Most frozen product apparently moves through two firms with trading throughout the Pacific basin.

V. Markets

The frozen spiny lobster-tail market is international, and Hawaiian frozen lobster tails compete with imports from Australia and other Pacific nations. Primary buyers include restaurants and suppliers. Local, upperscale restaurants have strong demand for whole, live lobster. The extent to which spiny lobster from the NWHI have taken the place of imports is unknown. Frozen tails probably are shipped out, but slipper lobster appears to have a

fairly strong local market. Imports of spiny lobster tails to Hawaii increased to 332,500 pounds in 1983 from 245,000 pounds in 1982. Data from earlier years are not available. It is probable that restaurants account for most consumption of lobsters in Hawaii.

Analysis

There is insufficient experience to draw conclusions as to the future of the fishery. The stock in the Necker Island area has accounted for most landings since the FMP went into effect. The variability of annual landings and the sporadic entry to and exit from the fishery indicate that the fishery has not yet stabilized. Early results in 1984 suggest that the stock is maintaining its productivity under continuing, relatively intensive fishing pressure, but catch per trap is down about 10 percent compared to 1983. Available data suggest that the MSY for the fishery may be at least equal to the mid-point of the estiamted MSY range (200,000 - 480,000 lobsters per year) in the FMP. That is, the Necker Island area alone may continue to yield 150,000 (or more) lobsters per year, which is near the lower end of the MSY range. Thus, the full NWHI chain could yield well over 200,000 lobsters per year even with relatively low production from other portions of the NWHI However, there has been little sustained fishing at other islands and yield potentials are unknown, so new entrants would continue to face a risk of uneconomical catch rates.

The basic elements of the FMP management regime are expected to remain in force for some time. The Western Pacific Council proposed, and the NMFS approved an amendment to the FMP to modify the trap opening size limit to

allow new types of traps to be used in the fishery. The amendment went into effect on July 6, 1983, and prevented losses to fishermen who had invested in the new traps.

The Honolulu Laboratory, Southwest Fisheries Center, is evaluating the potential benefits and costs of requiring escape gaps on traps. These could minimize losses of spiny lobster associated with mortality from handling and release of sub-legal lobsters, which would be able to exit from traps before traps are hauled. It also could simplify enforcement of the current size limits. However, this also might result in a loss of slipper lobster. Escape gaps are used in many lobster fisheries but are not required under the FMP. Such an amendment to the FMP will not be proposed unless deemed beneficial and could not be implemented before 1985.

Table 1: Estimated Annual Landings and Revenues for NWHI Spiny Lobster Fishery

	Landings[1] (lbs.)	Ex-vessel $/lb.	Total Revenue
1978[2]	45,000	$3.00	$135,000
1979[2]	100,000	3.20	320,000
1980[3]	328,000	3.40	1,115,000
1981[3]	780,000	3.50	2,730,000
1982[3]	187,000	3.60	673,000
1983	181,000	3.00	543,000

[1] Landings of lobster tails converted to whole lobster equivalent weight based on conversion formula: # tails ÷ .36 lbs./tail = whole lobster equalivent weight

[2] From FMP Source Document, 1981.

[3] Estimated by Honolulu Laboratory, Annual Report to Western Pacific Council, January, 1984.

Table 2: Estimated Species Composition of Catch and Catch Rates in 1983 NWHI Spiny Lobster Fishery.

	Catch(#)	Catch/Trap
Legal Spiny Lobster	157,606	2.05
Sublegal Spiny Lobster	50,780	0.66
Berried Spiny Lobster	9,712	0.13
Total Spiny Lobster	218,198	2.84
Slipper Lobster	25,610	0.33
Kona Crab	3	0

Source: From Honolulu Laboratory, SWC, based on Daily Lobster Catch Reports.

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